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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/657,256	09/09/2003	Mark R. Allen	5211.010	4021

7590 06/15/2004

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EXAMINER	
VO, TUYET THI	

ART UNIT	PAPER NUMBER
2821	

DATE MAILED: 06/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/657,256	ALLEN, MARK R.	
	Examin r	Art Unit	
	Tuyet Vo	2821	

-- The MAILING DATE of this communication appears on the cover sheet with the c rrespondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-3, 9 and 14-16 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Yamuro (US Pat. 5,941,626).

Yamuro discloses an apparatus for powering a plurality of light emitting diodes comprising:

a predetermined number (6) of light emitting diodes (4) electrically coupled in series to form plurality of series blocks (4, 5) in parallel, each light emitting diode having a lamp base (11) and internal circuit (Fig. 3) defining an average alternating current (9) which is inherently calculated to drive a predetermined number (6) of light emitting diodes, wherein the first LED and the last LED in one series block directly coupled to an intermediate pair of wires via a resistor (8) which are electrically connected to an alternating current power supply (9) by connectors (2, 3), the LEDs in series blocks are connected in polarity thereby coupling of multiple light strings in an end-to-end straight arrangement relatively to a wire axis, whereas there are approximately 50 LEDs in series block and are constructed in uniformly spaced apart (Fig. 1B) (col. 3, lines 10-45).

Even though this figure shows one end of the diode block being tied to the source via the resistor, by its natural layout, it fulfils applicant's definition of having this block directly ties to the source. During operation, this resistor also serves the electrical conductive wiring (its

resistance value can be zero ohm at desired) that would allow the current to flow directly from one end to another without a detour passage.

Alternatively, the claimed invention has been viewed as an obvious variation in design choice over Yamuro in view of the fact that line 37, column 3, in this teaching clearly lays out a desire for doing away with the resistor connection if needed. Even though figure 1B shows the usage of a resistor to stabilize the operation of the system, it's teaching, however, specifically leaves the option of using this resistor to one of ordinary skill in the art. In the interest of making the design of this circuit feasible, one of ordinary skill in the art would have considered it a routine design choice to alleviate this resistor. Applying the design without the resistor as suggested in a massive production environment, this would mount up to a considerable saving in the production line.

Yamuro does not explicitly mention that each LED having an average alternating current drive voltage and being provided by an alternative current voltage. Nonetheless, the inclusion of these features is considered as an obvious variation in design choice, since power distribution to commercially available LEDs is subject to the make up of the LEDs. In another word, should one attempt to distribute different forms of power system than an average alternating current drive voltage to a conventional light system such as found in Yamuro, undesirable output would occur, which may result in shortening the life of the LEDs. In view of this reasoning, it is the examiner's position that operating LEDs with an average alternating current drive voltage is an unavoidable step which one must take into account in prolong the life of LEDs. As such, one of ordinary skill in the art would have considered it obvious to implement the source found in Yamuro with a conventional average alternating current drive voltage in the interest of maximizing the service of Yamuro's LEDs.

3. Claims 4, 6-8 and 10 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Yamuro in view of Reymond (US Pat. 5,936,599).

Yamuro discloses substantially the claimed invention as noted above. However, Yamuro does not teach an electrical power supply provides alternating current having an alternating current voltage in the range of about 110V- 220V operated in at least 50 Hz.

Reymond discloses an electronic apparatus for AC powered light emitting diode comprising an AC power source of 120 V at 60 Hz supplied to the LEDs load.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the wide range power source taught by Reymond intoYamuro's lighting circuit for improving of adaptable capability with widespread standard power supplies.

Since human eyes perceive lighting as continuous for a light that emits at frequency above 4Hz, therefore, lighting emitted from LEDs which operate with a frequency about 60Hz definitely not being noticed by human eye as discontinuous lighting.

Even though, neither Yamuro nor Reymond discloses the number of LEDs in a series block is 100. The quantity of LEDs represented as a load are obvious a design choice to one having ordinary skill in the art, since they involved only routine skill in the art. In particular, an AC electric power source supplies 110V to operate 50 LEDs in a series block, then, it is obvious that 100 LEDs connected in a series block would be operated safely with an ac voltage supply source of 220 V for the same type of LEDs.

4. Claims 11, 12, 17 and 18 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Yamuro.

Yamuro discloses substantially the claimed invention as noted above. However, Yamuro does not teach as following:

- LEDs in each series block are either of the same colors or of different colors in random or non random order,

-the length relative to the LEDs blocks are spaced either uniformly or not in either a periodic or pseudo-random arrangement,

Colorful LEDs coupling in the above manner for aesthetic purposes are an obvious matter of design choice to one having ordinary skill in the art, since the arrangement of LEDs having different colors in any pattern involves only routine skill in the art.

5. Claim 5 is rejected under 35 U.S.C. 103 (a) as being unpatentable Yamuro in view of Reymond.

Yamuro in view of Reymond discloses substantially the claimed invention as noted above except that each LED has a p-n defining a break down voltage above which voltage applied in reverse bias the p-n junction break down, and in which light string having the alternating current voltage is less than the break down voltage. Applying a reverse bias voltage across each LED into the p-n junction of a LED less than the break down voltage of LED is an obvious expedient of one having ordinary skill in the art, since it ensures a current through diodes in an operating region called a forward current which must have its peak voltage safely below breakdown voltage or manufacturer 's rating, otherwise, the significant reverse current entered from the cathode to the anode of the diode at the AC power supply above a break down voltage will destroy the diode device due to undesired heat generated from that unlimited current.

6. Claim 13 is rejected under 35 U.S.C. 103 (a) as being unpatentable over Yamuro in view of Frohardt et al. (US Pat. 3,758,771), hereinafter Frohardt.

Yamuro discloses substantially the claimed invention in claims 1 and 11 as noted above. However, Yamuro does not teach a fiber optic bundle corresponding LED lens within a housing for diffusing light output of the LED through the fiber optic bundle. Frohardt discloses Fig. 2 an illuminated wig using bundles of optical fibers (30) conduct illumination of a light emitting diode (16) within the house (32).

It would have been an obvious matter of design choice to one having ordinary skill in the art at the time the invention was made to facilitate Frohardt's teaching into Yamuro's apparatus in order to optimum aesthetic vision by diffusing or transmitting the LED light through the fiber optic bundle, such selection or making of use is generally recognized as being within the level of ordinary skill in the art. In re Rose, 105 USPQ 237 (CCPA 1955).

7. Claims 19 and 20 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Yamuro in view of Chang et al. (US Pat. 5,887,967), hereinafter Chang.

As noted above, Yamuro teaches every feature of the claimed invention except for the particular mounting structure of which a keyed offset. Chang teaches a mounting structure with a keyed offset to ensure proper alignment between a bulb holder and the base of the bulb.

To prevent incorrect insertion of the bulbs, one of ordinary skill in the art would have considered it obvious to improve the mounting structure of Yamuro lighting bulbs with Chang's alignment system. In doing so, proper operation of the lighting system is a guarantee.

Much like the keyed offset as defined by the claimed invention, the dint (21, 31) and lead (41) in Chang do prevent incorrect insertion of the bulb into the base holder. Even though Chang does not specifically mention that such an alignment mechanism would ensure correct polarity, nonetheless it is implied that incorrect insertion of the light bulb into the holder would render the light system inoperative (col. 2, lines 1-14). Based upon the strict insertion requirement, matching polarity between the holder and the base upon insertion is an implicit feature found in Chang.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuyet Vo whose telephone number is 571 272 1830. The examiner can normally be reached on Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on 571 272 1834. The fax phone number for the organization where this application or proceeding assigned is 703 872 9306 for regular communications and for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0956.

Tuyet Vo
June 14, 2004